printed, and the new illustrations are all excellent; but a few of the old figures taken from the Survey reports, such as Fig. 72, might have been omitted as unworthy of place beside the new figures. Prof. Park's work not only shows what has been done, but directs attention to the problems which are still matters of vigorous controversy in New Zealand, and to various conclusions for which the evidence is still unconvincing.

The author is to be congratulated on many features of the stratigraphical classification adopted. Thus the Maitai series is now referred to the Carboniferous, a conclusion for which the evidence appears adequate, for the supposed Inoceramus, which led to the reference of the series to the Mesozoic, turns out to be an inorganic structure. The famous Cretaceo-Tertiary system of Hector has finally disappeared. It was based upon the commingling of fossils from two distinct horizons; and Prof. Park describes one of the beds to which some of these fossils were attributed as quite unfossiliferous. The volume includes a valuable note by Mr. F. Chapman on the correlation of the Oamaru series, which, with their Australian equivalents, he assigns to the Miocene. One may be excused for suspecting whether a stratigraphical difficulty in regard to the Kaihiku series is not due to another mixture of fossils.

Prof. Park's identification of the Maniototo series, the lowest part of the Manipouri system, as Cambrian appears to be the most doubtful point in his classification. The lithological characters of the Maniototo rocks are characteristically Archean, and though they are overlain by the graptolitic Kakanui series, which is Ordovician, far more convincing evidence than any yet forthcoming will be needed before the underlying gneisses can be safely accepted as Cambrian. The author is disposed to take a perhaps somewhat extreme view as to the range of the Pleistocene glaciation in New Zealand. His discussion and photographs of the well-known Taieri moraine give more satisfactory evidence of its glacial origin than any previously published. Prof. Park admits that the explanation of the Taieri moraine is still incomplete; that moraine is very far south and the evidence that glaciers reached sea-level further to the north is less satisfactory. He gives an interesting account of the glaciers and glacial deposits around the peaks of the North Island, and his account of the Tarawera eruption, with the exception of his recent paper in *The Geographical Journal*, is the best account of it yet written.

Prof. Park gives a very interesting account of the fault system of New Zealand, and admits the great influence faults have played on the existing geography of the country. He thus justifies the conclusions of Mackay, which were once so discredited in New Zealand. The account of the economic geology of New Zealand is of especial importance; but the author appears to be unnecessarily alarmist as to the approaching exhaustion of the world's stores of iron. "In two centuries or less," he says, "the battleships will be beaten into ploughshares and the ploughshare will be treasured by each family as a priceless heirloom." He makes the very sound proposal (p. 292) that some of the coalfields should be reserved for naval purposes; for since much of the power required on land can be derived from water, he holds that factories and domestic consumers should not be allowed to exhaust the fuel, which he thinks will always be indispensable for use at sea. Prof. Park makes no reference to the oilfields of New Zealand, to which prominent attention has recently been directed elsewhere.

J. W. G.

OUR BOOK SHELF.

The British Journal Photographic Almanac and Photographer's Daily Companion, 1912. Edited by G. E. Brown. Pp. 1436. (London: Henry Green and Co., n.d.) Price 1*s*. 6*d*. net.

OUR readers are so familiar with this bulky but indispensable accessory to the photographic studio that the mere announcement of the new issue is enough to make them obtain their copy. With 1436 pages the book is a veritable mine of information, and not only is it now almost a standard book of reference, but it is instructive in a host of ways. This year the editor contributes a very valuable article on lantern-slide making, and as this subject is a very popular one to-day, it should find a great number of readers. No less instructive is the admirable way Mr. C. H. Hewitt tells us how both in- and out-door portraiture may be successfully accomplished without any special appliances, and with the ordinary camera and lens; the article is also well illustrated with eleven examples of specimen work.

The "Epitome of Progress," by the editor, is full of interesting material, hints, and dodges, and the method of obtaining the effect of a portrait having been taken in a high wind is a good illustration of the last mentioned. In the section devoted to the recent novelties in apparatus, the editor occupies about eighty pages, so numerous are the articles to which reference is made. "How to do it" is the title of the section which gives 120 hints in picture form. Each picture is a hint showing how to select a hand or stand camera, use a tripod, carry the camera on tour, copy drawings or pictures, &c. There is little doubt but that this section will be considerably enlarged in the next issue. Mention need only be made of the lists of formulæ, tables, miscellaneous information, &c., and other distinguishing features which go to make us this useful volume.

While the book contains numerous diagrams and other illustrations, we may perhaps direct special attention to the very excellent three-colour print by Willfried Deyhle, of Berlin, from a photograph by F. Leiber, entitled "Kongsbay on Spitzbergen," taken with a Zeiss-Tessar f/4·5, equivalent focus 5¼ inches. The book concludes with full indices of the text, the advertisers, and the goods advertised.

Alpine Plants of Europe, together with Cultural Hints. By H. S. Thompson. Pp. xvi+287. (London: G. Routledge and Sons, Ltd.; New York: E. P. Dutton and Co., n.d.) Price 7*s*. 6*d*. net.

A VALID claim for originality is preferred by the author on the ground that this volume contains descriptions of plants from all ranges of the Alps, and it may be added, that a few species of extra-alpine habitat are included, as *Iberis gibraltaica*. The altitudinal signification of the work "Alpine" is also implied, so that for the most part the species noted find a congenial home at a higher elevation than 5000 feet. Inclusion of all the alpine species growing within the area has

© 1912 Nature Publishing Group

not been attempted; in fact, only nine species of Carex are included, and the list of grasses is limited to one species from each of eight characteristic genera. But for the more interesting alpine genera the list is nearly complete; thus, under Saxifraga about fifty species are described, and a few others are mentioned; this is very inclusive, although the species *Rudolphiana* and *Clusii* do not appear.

Most botanists are aware that Mr. Thompson has an intimate knowledge of the Alps and is familiar with many of the floral rarities; they will therefore be prepared to find the concise descriptions and useful critical notes that form a prominent feature in the book. Another subject on which Mr. Thompson is equally qualified to advise is the cultivation of alpine plants, and this aspect of the book, dealing with a popular hobby, is likely to attract so much attention that, contrary to the opinion expressed in the preface, one is inclined to say that it will be more sought after and used by the enthusiastic cultivator of alpines than by the ardent botanist who wishes to find and identify alpine species. The latter would in the first instance prefer a local flora that includes all the plants of the country; but subsequently he would find the present work most desirable for corroboration, critical determination, and comparison with allied species from other countries. There is a measure of inconsistency in the omission of generic descriptions for many genera, but this does not detract from a book which is primarily valuable for its expert and critical information. The three hundred coloured illustrations are on the whole accurate in the matter of form and colour. Certain general facts and the broad outlines of cultivation are discussed in three interesting introductory chapters.

Vocabulaire Forestier: Français—Allemand—Anglais. Par J. Gerschel, revu par W. R. Fisher. Cinquième édition, considérablement augmentée. Pp. vi+192. (Oxford: Clarendon Press, 1911.) Price 5*s*. net.

THIS is the fifth edition of a dictionary in French, German, and English of the technical terms which are usually met with in books on forestry in those languages. Compiled by Dr. Gerschel, late professor at the Nancy Forest School, the present edition was revised by the late Prof. W. R. Fisher, of Oxford, shortly before his death, and is now issued by the Clarendon Press. The book contains 192 closely printed pages, and is very useful, as it not only includes the technical terms peculiar to the art of forestry, but also most of the common terms of the sciences of botany, zoology, and geology, and, in addition, words pertaining to hunting and shooting. The German and French parts appear to be well done; but the English part requires to be thoroughly revised, as it contains many curious errors and omissions.

A good many words are doubtful or obsolete English, as "imp" used instead of "graft," "wood-apple tree" instead of "crab tree." "Virginian climber," p. 149, is commonly called "Virginia creeper," and "forest science," p. 149, should be "science of forestry."

Printer's errors are not uncommon, as, p. 20, "*Picea excelsa*, Hink," should read "Link"; p. 142, "*encelsa*" should read "*excelsa*"; p. 152, "*Liquidamber*" should read "*Liquidambar*"; and p. 175, "Scot's fir" should read "Scots fir." The statements made on p. 164 that the "durmast" is the "Turkey oak" and that "*Q. coccifera*" is the "scarlet oak" are erroneous. "Oseraie," p. 190, is not "willow culture," but "osier-bed."

An objectionable feature in the English part is the constant use of hyphens, where they are not usually employed, as "expectation-value," "coppice-with-standards," which are usually printed "expectation value," "coppice with standards."

It is to be hoped that in the next edition these obvious faults, which impair the value of this useful book, will be removed.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by Sir John B. Tuke and Dr. James Ritchie. Vols. x. and xi. (Edinburgh: Oliver and Boyd, 1911.)

THESE two handsome volumes are evidence, if that were needed, of the activity of research in the laboratories of the Royal College of Physicians of Edinburgh. They are also a testimony to the valuable work which may be done by means of the funds of a private corporation, aided in this case by a grant from the Carnegie Trust. The papers (which have all appeared elsewhere) are divided into four groups, those appertaining to anatomy, pathology, pharmacology, and physiology. All appeal to the specialist, and it is not possible to select any for special comment.

Of some general interest is the dietary study of the five halls of residence for students in Edinburgh, by Miss J. D. Cameron. The average cost per man per day (exclusive of condiments and beverages) is 15·1 pence, of which 66 per cent. is expended on animal food. The waste varies considerably, from 2·4 to 7·0 per cent. of the total money spent on food, but is about one-half of that in the American studies of college residences.

Dr. Berry Hart discusses the nature and origin of the "free-martin"—an apparently sterile cow, co-twin with a potent bull—of which John Hunter described three specimens, the organs of which are preserved in the museum of the Royal College of Surgeons, London. It seems to be established that the free-martin, when the co-twin is a potent male, is a sterile male, and not a sterile female. R. T. H.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

January Meteor-showers, 1912.

THE following are the computed particulars of the meteor-showers which become due during nearly the first fortnight in January:—

Epoch 1912, January 4, 11h. 30m. (G.M.T.), twenty-first order of magnitude. Principal maximum, January 3, 2h. 55m.; secondary maxima, January 3, 9h. 50m., 13h. 40m., and January 4, 10h. 25m.

Epoch January 5, 10h., approximately ninth order of magnitude. Principal maximum, January 6, 4h. 10m.; secondary maximum, January 6, 15h. 35m.

Epoch January 7, 0h. 30m., thirteenth order of magnitude. Principal maximum, January 5, 18h. 20m.; secondary maxima, January 6, 9h. 40m., and 19h. 30m.

Epoch January 7, 6h. 30m., fifth order of magnitude. Principal maximum, January 6, 22h.; secondary maxima, January 5, 21h., and January 6, 15h. 45m.

Epoch January 8, 2h., approximately eighteenth order of magnitude. Principal maximum, January 8, 3h. 35m.; secondary maxima, January 9, 2h. 30m. and 20h. 40m.

The first few days of January are comparatively quiet, the greatest meteoric activity occurring during the period January 5–9. The Quadrantid epoch of January 4, which is not so strong as the corresponding epoch of 1911, has its principal maximum early on the afternoon of January 3, but the other maxima will probably furnish some bright meteors, notwithstanding the presence of a full moon.

Dublin, December 23, 1911. JOHN R. HENRY.

© 1912 Nature Publishing Group